

REMARKS

Applicant has carefully reviewed the Office Action mailed on February 6, 2008. In response, claims 1-20 are pending. All claims remain as originally presented, with the exception of currently amended claims 1, 4 and 18.

With regard to the claim objections, Applicant has amended claims 1, 4 and 18 to address the issues raised by the Examiner. In particular, the minor amendments are made to correct grammatical issues. No new matter is added.

Substantively, claims 1, 3, 4, 8 and 11-15 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 3,246,516 to Maropis ("Maropis"). In addition, claims 1-4, 8-10 and 13-20 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 6,461,414 to Kohl et al. ("Kohl et al.") Finally, claims 5-7 stand rejected as allegedly being obvious over Maropis or Kohl et al. in view of U.S. Patent No. 4,325,255 to Howard et al. ("Howard et al.").

As originally presented, claim 1 requires an instrument for intended use in monitoring or controlling a foam associated with a process or an object. The instrument includes a *passive* sensor for generating an output signal representative of an acoustic emission associated with the foam and a controller in communication with the passive sensor for receiving the output signal and providing a response.

Maropis teaches a method and apparatus utilizing vibratory energy for measuring the displacement between interfacial levels of stratified substances, such as liquid, foam and gas, and also for determining the liquid content of foam. Specifically, the apparatus includes a vibratory probe comprised of an acoustic coupler connected to another acoustic coupler which in turn is connected to a vibratory energy transducer or generator. In use, the change in acoustic power transmitted along the probe into the fluid medium (liquid, gas or foam) results in a change in the standing wave structure in the probe and this change is detected by two vibration sensing elements. The instrument translates the output electrical signals from the sensing elements into a voltage, the value of which is a function of the acoustic

impedance match between the probe and the fluid medium in which it is vibrating.

Section 102(b) of the Patent Act provides as follows:

a person shall be entitled to a patent unless...the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States....

35 U.S.C. § 102(b). An "anticipation" rejection under this section requires "strict identity" between the prior art invention and the one claimed. See *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989) (holding that an anticipating reference must describe all claimed aspects of the invention).

Applicant acknowledges that, in the course of examining patent claims, the Examiner is entitled to give the language used its broadest reasonable interpretation. *Phillips v. AWH Corp.*, 415 F.3d 1303, 75 USPQ2d 1321 (Fed. Cir. 2005). However, this interpretation must be made "in light of the specification as it would be interpreted by one of ordinary skill in the art." *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364, 70 USPQ2d 1827 (Fed. Cir. 2004). Such interpretation involves "taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in applicant's specification." *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Furthermore, "[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art." MPEP 2143.03 (citing *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970)).

Contrary to the Examiner's position, Maropis does not teach "all claimed aspects" of claim 1. In particular, Maropis does not teach the claimed "passive sensor" for generating an output signal representative of an acoustic emission associated with the foam." Applicant's specification clearly distinguishes a "passive" sensor from an "active" sensor, noting that in an active sensor "an acoustic signal (usually ultrasonic) is both transmitted and received by the sensor." See ¶ [0030]. The Examiner contends that element 60 of Maropis is a "passive

sensor," but Maropis describes element 60 as being a "vibratory probe" comprised of transducer 41 and couplers 35, 38, and 40. Moreover, Maropis describes the coupler as being ultrasonic and further specifies that the transducer 41 generates "a signal proportional to the ultrasonic power being transmitted through said coupler." Thus, Maropis does not disclose a passive sensor, as that term is properly construed in light of the Applicant's specification.

In addition, Maropis fails to disclose "a passive sensor for generating an output signal representative of an acoustic emission associated with the foam" as required in claim 1. Instead, Maropis discloses comparing the impedance match or mismatch between the probe and the medium fluid to determine whether the transmitting end of the probe is located in a vapor, foam or liquid phase. Thus, Maropis does not disclose or even remotely suggest providing an "output signal" that is "representative of an *acoustic emission* associated with the foam." For at least these reasons, claim 1 is not anticipated by Maropis and should be allowed.

Turning to independent claim 13, it requires a method of monitoring and controlling a process involving a foam. The method includes the steps of "detecting an acoustic emission of the foam" and "actuating a response based on the detected acoustic emission." As discussed above, nowhere does Maropis discuss "detecting an acoustic emission of the foam." In stark and total contrast, Maropis discloses measuring the impedance match or mismatch between the probe and the medium fluid with which it contacts. Consequently, Maropis does teach each and every required element of claim 13 and, therefore, the anticipation rejection should be withdrawn.

The Examiner also rejects claims 3, 4, 8, 11, 12, 14 and 15 as allegedly anticipated by Maropis. However, claims 3, 4, 8, 11 and 12 depend upon independent claim 1, and claims 14 and 15 depend upon independent claim 13. As a result, these claims are also believed to be allowable. See *Trintec Industries, Inc. v. Top-U.S.A. Corp.*, 295 F.3d 1292, 1296, 63 USPQ2d 1597 (Fed. Cir. 2002) (noting that if an independent claim is not anticipated by the

prior art, then its dependent claims, which necessarily include the limitations of the independent claim, are not anticipated either).

In addition, a number of these dependent claims are patentable on independent grounds. For example, claim 4 requires "a plurality of passive sensors" and claim 14 requires "a passive sensor in acoustic communication with the foam" (emphasis added). Since Maropis does not teach or even remotely mention a passive sensor, these claims are not anticipated by this reference.

The Examiner further contends that claims 1-4, 8-10 and 13-20 are anticipated by the Kohl et al. reference. Kohl et al. discloses a system and method for monitoring and controlling foam or hydrocarbon carry over at a well site. Specifically, it teaches the use of a densitometer to measure the density of a gas or liquid stream sample exiting a high-pressure separator. Based upon the density measurement, the system may issue signals to a pump controller to control the injection of chemicals at the well site to control foaming.

Kohl et al. fails to disclose all of the claim requirements in independent claims 1, 13 and 17. In particular, Kohl et al. does not teach any element for generating "an output signal representative of an acoustic emission associated with the foam" as required in claim 1 or "detecting an acoustic emission of the foam" as required in claim 13. Rather, it plainly requires monitoring the foam by taking a density measurement of a gas or liquid sample. Nowhere does Kohl et al. even remotely mention monitoring an acoustic emission associated with the foam. Accordingly, the anticipation rejections of independent claims 1 and 13 (and the corresponding dependent claims 2-4, 8-10 and 14-16) should be withdrawn.

Turning to independent method claim 17, it requires a method of testing a mix used to form concrete. The Examiner contends (without citing any support in the reference) that Kohl et al. discloses all of the required elements in claim 17. However, Kohl et al. does not even remotely mention "a method of testing a mix used to form concrete." Indeed, the Examiner admits that "neither Maropis or Kohl et al. explicitly suggests a system for testing a mineral admixture for making concrete." *See Office Action dated 2-6-08, page 4, ¶ 6.*

Consequently, the rejection of claim 17 (and dependent claims 18-20) should also be withdrawn.

An independent basis for rejecting claim 18 is the requirement for an "air entraining agent." Such an agent, by definition, instills air, and thus *creates* foam. The entire goal of the Kohl et al. and Maropis references is to limit foaming. The Examiner in making the rejection of this claim does no in any way explain why a skilled artisan would want to apply an air entraining agent in connection with the devices of either of these references, as would be necessary to establish the obviousness of the invention of claim 18. Accordingly, withdrawal of the rejection is in order.

Finally, the Examiner contends that claims 5-7 are obvious over Maropis or Kohl et al. in view of Howard et al. As noted above, the Examiner admits that neither Maropis nor Kohl et al. explicitly suggest a system for testing a mineral admixture for making concrete as required in these claims. However, she cites Howard et al. for teaching "monitoring changes in a physical/chemical characteristics like curing resins, concrete and similar materials." *See Office Action dated 2-6-08*, p. 4, ¶ 6. Thus, with regard to claim 5, the Examiner concludes that it would have been well known to an artisan in the art "to combine the device with a system for testing a mineral admixture for making concrete as suggested by Howard et al. wherein the characteristics of the concrete can be monitored in such a way that all of the results in the changes in impedance to the delivery of ultrasonic energy into the materials through an ultrasonic probe is carried out." *See Office Action dated 2-6-08*, p. 4, ¶ 6. Further, the Examiner contends with regard to claims 6 and 7 that Kohl et al. "discloses a source of an air entraining agent added to the admixture such that the response includes a signal for activating an agitator."

Initially, a *prima facie* case of obviousness is lacking because Applicant has already demonstrated that neither Maropis nor Kohl et al. teach each and every element of independent claim 1 (upon which claims 5-7 depend). Specifically, neither reference discloses "a passive sensor for generating an output signal representative of an acoustic

emission associated with the foam." Further, claims 6 and 7 are independently patentable because Kohl et al. does not disclose "a source of an air entraining agent." Indeed, the Examiner fails to cite to any portion of Kohl et al. for allegedly teaching "a source of an air entraining agent added to the admixture such that the response includes a signal for activating an agitator."

The Examiner also fails to provide the necessary support for combining the references to make an obviousness rejection. As recently observed by the U.S. Supreme Court, "rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR International Co. v. Teleflex, Inc.*, 550 U.S. ___, 82 USPQ2d 1385, 1396 (2007) (*quoting In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006)). For at least these reasons, withdrawal of the obviousness rejections is in order.

In light of the foregoing, it is now believed that all pending claims are allowable. If any issues remain, the Examiner is encouraged to contact the Applicant's attorney at the telephone number listed below in order to reduce costs and expedite the prosecution of this patent application. To the extent any fees are due for processing this response, the undersigned authorizes their deduction from Deposit Account 11-0978.

Respectfully submitted,

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A handwritten signature in black ink, appearing to read 'Andrew D. Dorisio', is written over the printed name and firm name.

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